

# Research methods, class practicals and the research proposal (Paper 2; IA)

International Baccalaureate · IB Diploma · Psychology · HL

## Research methods, class practicals and the research proposal

IB Diploma Programme Psychology HL (the course first assessed in 2027). This topic covers how psychologists collect evidence. You need it for three parts of the assessment.

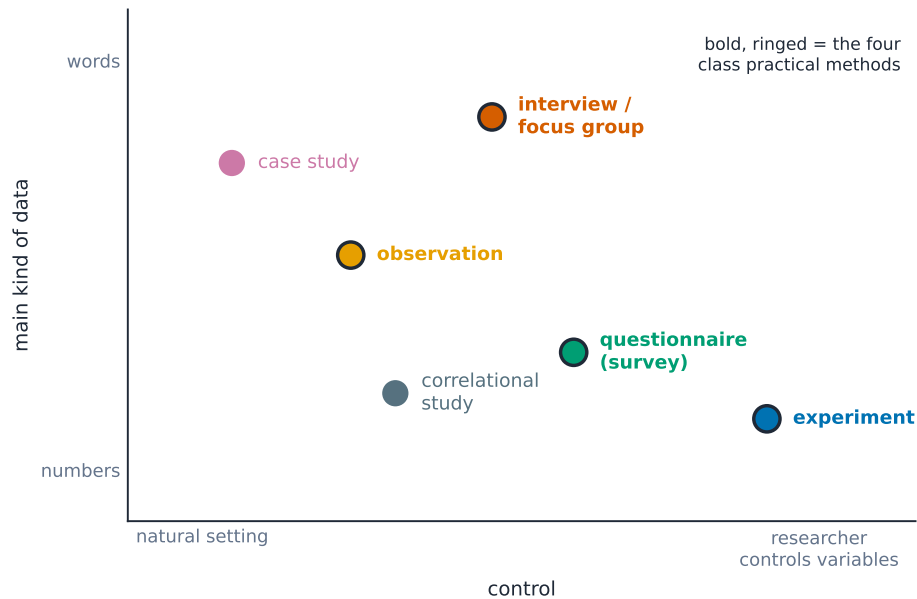
In your **class practicals** you carry out at least four small studies, one with each of four methods: an experiment, an interview or focus group, an observation, and a questionnaire. Paper 2 Section A asks four questions about one of your practicals, and Section B asks you to discuss an unseen study using the concepts. The **internal assessment** is a **research proposal**: you plan a study for a **population of interest** but do not carry it out.

In 2015, 270 researchers tried to repeat 100 published psychology studies. Only about a third (36%) found a significant result again. Some of the original studies had small samples, flexible analyses or biased designs. Research methods are not a list to memorise; they decide which findings you can trust.

### Must-know for this topic:

| Idea        | Key content                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------|
| methods     | experiment, questionnaire, interview and focus group, observation; also correlational study and case study |
| experiments | IV, DV, hypotheses, designs, controls, types of experiment                                                 |
| sampling    | random, opportunity, self-selected, purposive, snowball                                                    |
| quality     | bias, validity, reliability, credibility, generalisability                                                 |
| ethics      | consent, withdrawal, deception, debriefing, harm, confidentiality                                          |
| assessment  | Paper 2 Sections A and B; the research proposal                                                            |

## Six research methods



*Six methods placed by control and by kind of data; the four ringed ones are used in class practicals*

| Method                  | What it does                              | Strength                | Limit                          |
|-------------------------|-------------------------------------------|-------------------------|--------------------------------|
| experiment              | changes one variable and measures another | can show cause          | often artificial               |
| questionnaire           | many people answer the same questions     | quick, large samples    | people may not answer honestly |
| interview / focus group | people talk about their experience        | rich, detailed data     | hard to compare; small samples |
| observation             | records what people actually do           | real behaviour          | observer bias; no cause        |
| correlational study     | measures how two variables move together  | shows relationships     | no cause                       |
| case study              | studies one person or group in depth      | rare cases, rich detail | may not apply to others        |

**Quantitative data** are numbers; **qualitative data** are words, pictures or descriptions. Experiments and questionnaires mostly produce quantitative data; interviews mostly qualitative data.

# Experiments

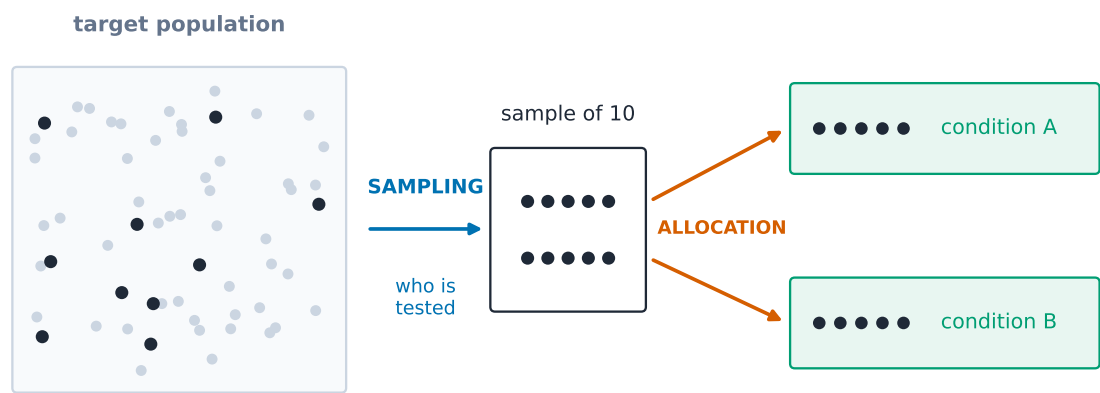
An **experiment** changes the **independent variable** (IV) and measures the effect on the **dependent variable** (DV), while keeping other variables the same. A variable that changes with the IV and also affects the DV is a **confounding variable**.

Hypotheses must be precise. For a study on music and memory:

- **Research hypothesis** : students who learn 20 words in silence will recall more words than students who learn them with music playing.
- **Null hypothesis** : there will be no difference in recall, or any difference will be due to chance.

There are three **experimental designs** :

| Design              | Meaning                                      | Strength                | Problem and fix                             |
|---------------------|----------------------------------------------|-------------------------|---------------------------------------------|
| independent samples | different people in each condition           | no order effects        | group differences; fix: random allocation   |
| repeated measures   | the same people do both conditions           | no group differences    | order effects; fix: <b>counterbalancing</b> |
| matched pairs       | similar people paired, one in each condition | fewer group differences | slow to match                               |



Random sampling makes the sample representative; random allocation makes the groups comparable.

*Sampling chooses who takes part; allocation decides which condition each person does*

A **laboratory experiment** has high control but may not feel real (low **ecological validity**). A **field experiment** happens in a real setting. In a **natural experiment** the researcher does not choose the IV (for example, a new school timetable), and in a **quasi-experiment** the IV is a fixed trait such as age or gender, so participants cannot be randomly allocated.

# Sampling

| Technique              | How                          | Main problem                              |
|------------------------|------------------------------|-------------------------------------------|
| random sampling        | everyone has an equal chance | needs a full list of the population       |
| opportunity sampling   | whoever is available         | may not represent the population          |
| self-selected sampling | volunteers answer an advert  | volunteers may be different               |
| purposive sampling     | people chosen for a feature  | the researcher's choice may be biased     |
| snowball sampling      | participants recruit others  | people know each other, so they are alike |

Purposive and snowball sampling are common for interviews, when the researcher needs people with a special experience.

## Questionnaires, interviews and observations

A **questionnaire** can use closed questions (yes/no, or a **Likert scale** from 1 "strongly disagree" to 5 "strongly agree") or open questions. Closed answers are easy to count; open answers give reasons. People may give the answer that sounds good: **social desirability bias**. Anonymous questionnaires reduce it.

An **interview** can be structured (fixed questions), semi-structured (an interview guide, with follow-up questions) or unstructured. A **focus group** is an interview with about 6 to 10 people at once, where people's answers spark each other's ideas, but a strong speaker can lead the group. Interviews are recorded, transcribed and analysed by finding themes.

An **observation** can be naturalistic (a real setting) or controlled, overt (people know) or covert (they do not), and participant or non-participant. Observers use a **behaviour checklist** with clear categories, for example "hits", "shares a toy", "helps". Two observers record the same sessions, and high agreement shows **inter-rater reliability**.

## Judging quality

| Issue                   | Meaning                                              | Example and fix                                                                      |
|-------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>participant bias</b> | participants change their behaviour                  | <b>demand characteristics</b> : they guess the aim; fix: hide the aim, debrief later |
| <b>researcher bias</b>  | the researcher's expectations affect results         | fix: a <b>double-blind</b> design or a second coder                                  |
| <b>generalisability</b> | results apply to the population                      | a random, large sample helps                                                         |
| <b>credibility</b>      | qualitative findings reflect what participants meant | fix: <b>triangulation</b> (several methods or researchers)                           |
| <b>transferability</b>  | qualitative findings apply to other settings         | fix: describe the setting in detail                                                  |

## Ethics

Every study must follow ethical rules. The main ones are **informed consent** (people know what they agree to; parents consent for children under 16), the **right to withdraw** at any time, no **deception** unless it is necessary and harmless, **debriefing** (telling participants the true aim afterwards), **protection from harm** and **confidentiality** (no names in the report). Responsibility, one of the six concepts, asks you to apply these rules to a particular study.

## Paper 2

**Section A** asks four questions about one class practical: describe what you did (4 marks), explain a concept in relation to it (4 marks), compare it with another method (6 marks) and design a study with a different method on the same topic (6 marks).

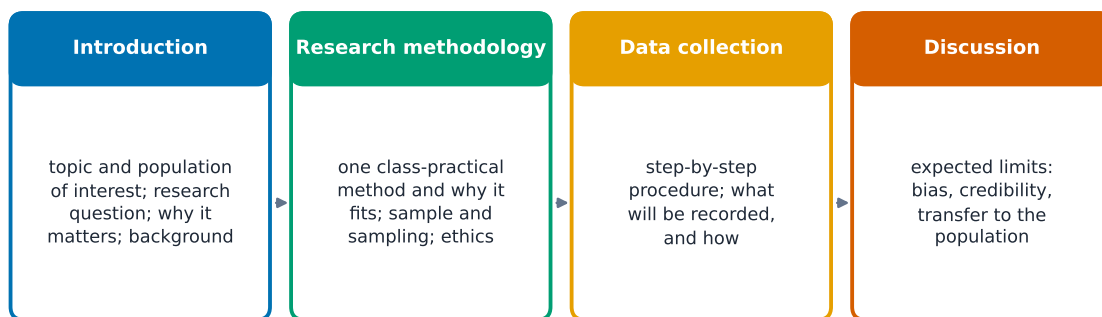
**Worked example.** *Describe how you used an interview or focus group in your class practical.* (4 marks)

Our aim was to find out how IB students experience stress before mock exams. We used purposive sampling to choose four DP2 students who had just taken mocks. Each gave informed consent. We ran semi-structured interviews of about 15 minutes with six open questions, such as "What did you do the evening before your first exam?", and recorded them. We transcribed the recordings and coded them, and two themes appeared: lack of sleep and comparing scores with friends.

**Section B** (15 marks) gives you an unseen study. You discuss it with two or more of four concepts: bias, causality, measurement and responsibility. For each concept: point to a detail in the study, explain its effect on the conclusion, and suggest a better design.

## The research proposal (internal assessment)

The internal assessment is a research proposal of 24 marks. You choose a topic and a population of interest (for example, international students in their first year in China), and plan a study with one of the four class-practical methods. You argue for every choice, but you do not collect data.



*You plan the study in full and argue for each choice; you do not collect the data.*

### *The four parts of the research proposal*

Example plan: *How do first-year international students in Ningbo experience making friends?* Method: semi-structured interviews, because the question is about experience and needs rich data. Sample: purposive sampling of eight students, through the university's international office. Ethics: informed consent, a right to withdraw, no names, and information about counselling services. Discussion: the researcher's own views could shape the questions (bias), so a second researcher codes the transcripts; eight students from one university may not transfer to other cities.

## Checklist

- The six methods, with a strength and a limit of each; quantitative and qualitative data.
- IV, DV, confounding variables; research and null hypotheses; the three designs, counterbalancing and random allocation; types of experiment.
- Five sampling techniques with their problems.
- Questionnaires (Likert, social desirability), interviews and focus groups, observations (checklists, inter-rater reliability).

- Participant and researcher bias; generalisability, credibility, transferability, triangulation.
- The ethical rules, and how responsibility applies them.
- Paper 2 Section A (4, 4, 6, 6 marks) and Section B (15 marks, two or more concepts).
- The research proposal: four parts, one class-practical method, planned but not carried out.